

SF

Notice of Allowability	Application No.	Applicant(s)	
	09/772,989	MORISHIMA ET AL.	
	Examiner	Art Unit	
	Audrey Y. Chang	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to amendments 5/11/05 and 6/14/05.
2. The allowed claim(s) is/are 29-36 renumbered as 1-8.
3. The drawings filed on 31 January 2001 are accepted by the Examiner.
4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some* c) None of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application (PTO-152)
6. Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.

EXAMINER'S AMENDMENT

Remark

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 14, 2005 has been entered.
2. This Office Action is also in response to applicant's amendments filed on May 11 and June 14, 2005, which have been entered into the file.
3. By this amendment, the applicant has amended claims 29-31, and has newly added claims 32-36.
4. Claims 29-36 remain pending in this application.

Examiner's Amendment

5. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Brian Klock, (Reg. No. 36,570) on August 23, 2005.

The application has been amended as follows:

In the claims:

34. (Currently Amended) A stereoscopic image display apparatus for providing a stereoscopic image to an observer by guiding parallax image light for a left eye to a position which is in a vicinity of a left eye of the observer on a predetermined observation plane and guiding parallax image light for a right eye to a

Art Unit: 2872

position which is in a vicinity of a right eye of the observer on a predetermined observation plane, comprising:

an image display element in which right eye pixel lines in each of which pixels are arranged in a horizontal direction and left eye pixel lines in each of which pixels are arranged in a horizontal direction are alternately arranged in a vertical direction;

a lateral lenticular lens for receiving light from said image display element, wherein said lateral lenticular lens comprises a plurality of lateral cylindrical lenses arranged in a vertical direction, the lateral cylindrical lenses having refracting power in a vertical direction and substantially not having refracting power in a horizontal direction;

a second longitudinal lenticular lens for receiving light from said lateral lenticular lens, wherein said second longitudinal lenticular lens comprises a plurality of second longitudinal cylindrical lenses arranged in a horizontal direction, the second longitudinal cylindrical lenses having refracting power in a horizontal direction and substantially not having refracting power in a vertical direction;

a mask member for receiving light from said second longitudinal lenticular lens, wherein said mask member has a plurality of substantially rectangular openings and shield regions having a plurality of rectangular shields, wherein the rectangular openings are arranged by shifting positions so that the position of each of said plurality of rectangular openings is shifted with respect to a neighboring rectangular opening by with a common distance in a common direction and the shield regions are formed by shifting positions arranged so that the position of each of said plurality of rectangular shields is shifted with respect to a neighboring rectangular shield by with a common distance in the common direction; and

a first longitudinal lenticular lens for receiving light from said mask member, wherein said first longitudinal lenticular lens comprises a plurality of first longitudinal cylindrical lenses arranged in a horizontal direction, the first longitudinal cylindrical lenses having refracting power in a horizontal direction and substantially not having refracting power in a vertical direction,

Art Unit: 2872

wherein light from said first longitudinal lenticular lens is guided to the positions which are in the vicinity of the left eye and the vicinity of the right eye of the observer on the predetermined observation plane.

36. (Currently Amended) A stereoscopic image display apparatus for providing a stereoscopic image to an observer by guiding parallax image light for a left eye to a position which is in a vicinity of a left eye of the observer on a predetermined observation plane and guiding parallax image light for a right eye to a position which is in a vicinity of a right eye of the observer on the predetermined observation plane, comprising:

an image display element in which right eye pixel lines in each of which pixels are arranged in a horizontal direction and left eye pixel lines in each of which pixels are arranged in a horizontal direction are alternately arranged in a vertical direction;

a micro lens array for receiving light from said image display element, wherein said micro lens array comprises toroidal lenses whose refracting power in a vertical direction and refracting power in a horizontal direction are different;

a mask member for receiving light from said micro lens array, wherein said mask member has a plurality of substantially rectangular openings and shield regions having a plurality of rectangular shields, wherein the rectangular openings are arranged by shifting positions so that the position of each of said plurality of rectangular openings is shifted with respect to a neighboring rectangular opening by with a common distance in a common direction and the shield regions are formed by shifting positions arranged so that the position of each of said plurality of rectangular shields is shifted with respect to a neighboring rectangular shield by with a common distance in the common direction; and

a longitudinal lenticular lens for receiving light from said mask member, wherein said longitudinal lenticular lens comprises a plurality of longitudinal cylindrical lenses arranged in a horizontal

Art Unit: 2872

direction, the longitudinal cylindrical lenses having refracting power in a horizontal direction and substantially not having refracting power in a vertical direction,

wherein light from said longitudinal lenticular lens is guided to the positions which are in the vicinity of the left eye and the vicinity of the right eye of the observer on the predetermined observation plane.

Reasons For Allowance

6. The following is an examiner's statement of reasons for allowance: of the prior art references considered none has disclosed a *stereoscopic* image display apparatus that is comprised of an *image display element* for displaying a synthesized parallax image having synthesized stripe images being a *plurality of horizontally elongated images*, a *mask member* having plurality of openings and shield regions, a *second optical system* for converging light from the image display element to the *mask member* and a *first optical system* for converging light from the mask member to predetermined observation plan, wherein the *second optical system* includes a *first lens array* having a plurality of *first lenticular lenses periodically arranged in vertical direction* and a *second lens array* having a plurality of *second lenticular lenses periodically arranged in horizontal direction*. The optical characteristics of the first lens array in a *vertical* direction is **different** from the optical characteristics of the second lens array in a *horizontal* direction. In a different embodiment, the second optical system comprises a **micro lens array** having *toroidal* lenses with a refracting power in a vertical direction and a refracting power in the horizontal direction **different** from each other.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A. Chang, Ph.D.

*Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872*